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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/885,231 | 06/19/2001 | Michael O'Connor | 42390P10707 | 4421 |

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EXAMINER

ESPLIN, DAVID B

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2851 | |

DATE MAILED: 05/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|---------------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/885,231 | O'CONNOR ET AL. |
| | Examiner D. Ben Esplin | Art Unit 2851 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 19 June 2001.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-54 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 8-19 is/are allowed.

6) Claim(s) 1-7,20-36,38-44 and 46-54 is/are rejected.

7) Claim(s) 37,45 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 6, 7, and 38 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Referring to claim 6, a means for blocking light from the modulators before it enters the combiner is not shown in the drawings, or disclosed in the specification.

Referring to claim 7, a means for providing data, pertaining to two different images, to the two light kernels, for the purpose of providing a 3-D image to a viewer, is not described in the specification in a way that would enable one of ordinary skill in the art to make and/or use the disclosed invention to create 3-D images.

Referring to claim 38, the method step of using the switching means to perform white point compensation is not found anywhere within the specification and is therefore not enabled by the disclosure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

- (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
- (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-3, 7, 29-34, 40, 41, and 46-48 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,309,071 to Huang et al.

FIG. 2 of the patent to Huang clearly shows a liquid crystal projection display system with the color wheel 114 allowing one color to pass continuously, while switching back and forth between the other two (col. 4 lines 12-17). The light is then separated by the polarizing beam splitter 122 into an s-polarization component and a p-polarization component which are then incident on the polarizing beam splitters 128 and 146 (col. 4 lines 36-39). The light is then modulated by two sets of liquid crystal modulators 130, 132 and 148, 150 for modulating the light. The polarizing beam splitter 138 then recombines the modulated light and the projecting lens 140 projects the image contained in the recombined light beam.

Referring specifically to claims 7 and 29, the limitation that the apparatus be used to provide a 3-D image to a viewer is considered to be intended use and is not given patentable weight.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 5, 20-28, 34-36, 38, 39, and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. as applied to claims 1-3, 7, 29-34, 40, 41, and 46-48 above, and further in view of U.S. Patent No. 6,144,420 to Jung.

The patent to Huang fails to show a color switching means disposed after the separating polarizing beam splitter 122 in the optical path. Instead the color switching is done prior to separation by the color wheel 114 (see FIG. 2). However, the patent to Jung, in FIG. 2, clearly show the color wheel 173 being disposed after a separating polarizing beam splitter 130, in a reflection projector type apparatus that separately modulates the s and p components of a light beam. Therefore, it would have been obvious to one skilled in the art to provide color switching means in a system, like the one disclosed by Huang, in the optical light paths leaving the separation polarizing beam splitter, as is shown by Jung to be well known, as an art recognized alternative to the color switching means of Huang located before the separation polarizing beam splitter.

Regarding claims 26-28, the patent to Huang is silent concerning the use of a three color switching means. But the color wheel 170 found in FIG. 2 of Jung is a three color switch.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to replace the two color switch of Huang with the three color switch of Jung as an art recognized equivalent.

Referring specifically to claim 36, the limitation that the apparatus be used to provide a 3-D image to a viewer is considered to be intended use and is not given patentable weight.

Claims 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. as applied to claims 1-3, 7, 29-34, 40, 41, and 46-48 above, and further in view of U.S. Patent No. 5,982,541 to Li et al.

In the patent to Huang, the polarizing beam splitters 122 and 138 are shown as prisms, and not plate polarizers. Li shows that the use of plate polarizers as polarizing beam splitters was well known at the time of the invention (col. 1 lines 30-35). In light of the teachings of Li, it would have been obvious to replace the polarizing beam splitting prisms of Huang with plane polarizers as is taught by Li.

Claims 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of Jung as applied to claims 4, 5, 20-28, 34-36, 38, 39, and 42-44 above, and further in view of Li.

As in claims 49 and 50, neither Huang, nor Jung teaches of the use of plate polarizers in the place of the polarizing beam splitters 122 and 138. Li shows that the use of plate polarizers as polarizing beam splitters was well known at the time of the invention (col. 1 lines 30-35). In light of the teachings of Li, it would have been obvious to replace the polarizing beam splitting prisms of Huang with plane polarizers as is taught by Li.

Allowable Subject Matter

Claims 8-19 are allowed.

While the use of two light engine kernels was well known in the art the limitation found in the independent claim 8 that the two light engine kernels utilize two separate color spaces to insert content into the light passing through the claimed apparatus is not found in the prior art, making claim 8 allowable. Since claims 9-19 depend from claim 8 they inherently include the abovementioned allowable subject matter and are found to be allowable.

Claims 37 and 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 37 and 45 are considered to contain patentable subject matter because they include the limitation the two light engine kernels use two separate color spaces to provide image information to light.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,028,121 to Baur et al. discloses a projection device that patterns the s and p polarization components separately.

U.S. Patent No. 5,517,340 to Doany et al. discloses a high performance projection display that modulates the s and p polarization components separately.

U.S. Patent No. 5,798,819 to Hattori et al. discloses a projection display apparatus that modulates the s and p polarization components of each color separately.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Ben Esplin whose telephone number is (703) 305-4022. The examiner can normally be reached on Mon.-Fri. (8am-4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on (703) 308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

DBE
DBE
April 29, 2002


RUSSELL ADAMS
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